Information and Management Sciences
Volume 15, Number 2, pp.71-80, 2004

A Batch Arrival Two-State M/M/1 Queueing System with Latest Arrival Run (LAR) Having Maximum Effective Length One

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Abstract

In this paper, we analyse a first-come, first-served, single channel queueing system in which probabilities of arrivals in batches of different sizes at a transition mark depend upon the LAR, the length of which is either zero or greater than equal to one at the previous transition mark. We also obtain the Laplace transforms of the probabilities of (i) number of units in the system, (ii) exact number of arrivals, and (iii) exact number of departures.

Keywords: Latest Arrival Run, Two-State Queueing System, Single Server.